INTRODUCTION

The 2002 Virginia Water Quality Assessment Report is a summary of the water quality conditions in Virginia during the past five years (January 1, 1996 – December 31, 2000). This report, compiled by the Department of Environmental Quality (DEQ) with the assistance of the Department of Conservation and Recreation (DCR), is submitted to the Environmental Protection Agency and Congress to satisfy the federal reporting requirements under Section 305(b) of the Clean Water Act.

Summary information on water quality and the various programs developed by the DCR, DEQ and other federal, state and local agencies to assess and protect water quality and human health have been incorporated in this report. Also included in this report is assessment data provided by quality assured citizen volunteers. Detailed sampling information for the nine river basins found in Virginia is incorporated into Appendix B of this report. This information includes the river basin sampled, the monitoring station identification, the parameter(s) sampled, assessment methodology used and associated comments. Any additional information concerning specific stations or the data presented in this report can be retrieved upon request by contacting the DEQ's central or local regional offices.

Many aspects of this assessment process are the same as previous assessments but several changes or enhancements have been implemented for this reporting period which are different from previous assessments. First and foremost, the overall assessment of water quality, once again, incorporates a five-year period. Earlier assessments had been based on a two-year period which made it very difficult to accurately predict water quality because the number of sampling data points available were limited. By going to a five-year assessment period, more data points are available and a better analysis of the data can be performed. Secondly, the use of the "fully supporting but threatened" category is used again in several different ways. This category includes DEQ designated "nutrient enriched waters" (9VAC 25-260-350). These waters are considered threatened due to administrative and/or evaluated reasons and are specific to aquatic life use (ALUS). Shellfish waters with temporary harvesting restrictions are considered threatened for shellfish consumption and exceedences of sediment and nutrient SV's are considered threatened for ALUS. Citizen monitoring data, which indicate exceedences of Water Quality Standards, are considered threatened for the designated use associated with the exceedences. **Although the fully supporting but threatened category has been used in the 2002 assessment, DEQ is <u>not</u> predicting that these waters will ultimately become impaired. This identification will help target those waters needing additional monitoring. DEQ considers threatened waters as "waters of concern".**

An important modification to this assessment is the inclusion of an estuarine benthic and toxic review of water quality. Previously, this type of estuarine water quality information was scarce and not very reliable. The Chesapeake Bay Program (CBP) has been very active in sampling and analyzing estuarine waters and has provided DEQ with reliable data for assessment review. Assessment of the random benthic index of biological indicators (B-IBI) collected by the CBP, where severely degraded conditions have been detected, will be assessed as fully supporting but threatened. DEQ has made the decision that a random, single sample is not enough data to cause the water to be listed as impaired. Fixed station B-IBI severely degraded data will be used to identify that water as impaired. For estuarine toxics evaluation, a "weight of evidence" approach, which was developed by the Chesapeake Bay Alliance, has been used.

Another major change is the assessment of fish tissue as it relates to fish consumption use. Previously, exceedences of the fish tissue screening values have been assessed as fully supporting but threatened. For the 2002 assessment, 2 or more exceedences of the same toxic screening value at a site may be assessed as impaired since the screening values are directly calculated from the "human health" Water Quality Criteria for Surface Waters (9 VAC 25-260-140).

Equally important to the 2002 assessment is the inclusion of certain U.S. Forest Service (USFS) and "quality assured" citizen monitoring data. DEQ has been active with several citizen monitoring groups enhancing the quality of the monitoring data provided by these various groups. Additionally, USFS has shared a substantial amount of water quality data associated with the George Washington and Jefferson National Forests. These additions, along with the benthic data provided by CBP, has increased the spatial coverage of water quality assessment throughout the state and is an important step in reaching a comprehensive assessment of all waters within the state.

In addition to the previously described enhancements to the 2002 water quality assessment process, the 305(b)/303(d) guidance manual has been revised and updated in an attempt to enhance assessment quality and consistency among the regional offices. The revised manual has been reviewed by an academic advisory committee (AAC) made up of academic advisors from several state universities who are familiar with water quality issues. The purpose of this committee is to review the procedures associated with water quality assessment and to provide insight concerning specific technical issues DEQ and the committee feel may need additional revision or clarification. Additionally, DEQ has also made this guidance document available to the public for comment and revisions from this review process have been incorporated. The 2002 Assessment Guidance Manual can be found on the DEQ website at: **http://www.deq.state.va.us/water/reports.html**

In July 1997, DEQ established the Water Quality Monitoring Task Force. The purpose of the Task Force was to update the water quality monitoring program to conform with the requirements of the Water Quality Monitoring, Information, and Restoration Act of 1997. The Task Force analyzed the current operational plans of the various monitoring programs within DEQ and has begun implementation of the new monitoring strategy. The expected outcome of this strategy will be consistent station siting, greater stream mile coverage, and expanded pollutant analyses so overall water quality can be determined within specific and easily identifiable, geographically defined water segments.

To assist in the goal of increasing the number of stream miles monitored, DEQ's citizen volunteer monitoring program has greatly increased the role of coordinating the monitoring activities of participating volunteer groups. Consistent quality control practices and quality assurance procedures within the volunteer monitoring programs help ensure the creditability and precision of the volunteer data for use in the Amonitored data≅ assessment process.

Alternative station siting selection criteria are also being explored as a basis for expanding river miles monitored. Historical monitoring station selection is being used to determine any need for additional monitoring in those waters known to have water quality problems. Additionally, special studies, associated with the Total Maximum Daily Load (TMDL) program, are being used to "focus" monitoring in specific waters that have been identified as impaired for one or more designated uses.

Expanded pollutant analysis is currently being conducted using new techniques developed by the Department. These include clean metals monitoring, additional pathogenic bacteria monitoring, trace organic compound(s) analysis in whole water column and new chlorophyl a filter sampling analysis.

Finally, DEQ and DCR, with inputs from other federal, state, local and citizen stakeholders, have begun a cooperative effort to schedule and develop Total Maximum Daily Loads (TMDLs) for waters not meeting Water Quality Standards, as identified in the 303(d) impaired waters list. These efforts will result in the development of pollutant "load allocations" which upon implementation, will ultimately allow these waters to return to fully supporting all designated uses.

For more information relating to water quality programs and initiatives visit the DEQ website at http://www.deq.state.va.us/water/.